RELEASE NOTES - RPG BUILD 9.0

This page contains the enhancement and change information occurring with RPG Build 9.0 software. The remainder of the document lists minor problems along with workarounds, solutions, explanations of how some functionality works, and suggestions on how to prevent various problems and situations.

Enhancements and Change Information in RPG Build 9.0

RPG Software Build 9.0 provides the following enhancements:

- Changes to support the RPG hardware refresh. These include changing Operating systems from Solaris 8 to Redhat Enterprise Release 4.
- Automates hardware configuration for routers, lan switch, etc.
- Implements ingest of the RUC environmental data from AWIPS to the RPG. This data will be used for initializing the RPG environmental winds data.
- Implements Machine Intelligent Gust Front Algorithm (MIGFA). MIGFA is a FAA algorithm which produces gust front detections and forecasts.
- Lowers the threshold and changes the linear scaling in the High Resolution VIL product to improve weak weather depiction for Aviation use.
- Adds new volume coverage patterns to use the Sachidananda - Zrnic (SZ-2) Algorithm.
- Adds Real-Time Level II Transmission Capability to FAA WSR-88Ds.
- Mesocyclone Detection Algorithm Phase III implementation which changes alerting and the Combined Attributes Table to use the MD product versus the Mesocylone product.

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1 CLUTTER SUPPRESSION

1.1 Clutter Regions Backgrounds Don't Always Appear when Requested

There are several minor problems with the new process for selecting Clutter Regions Background Products:

Problem: When the radar is down for more than 10 minutes, the operator may get either an old background product in the Clutter Regions window or the message "Background Product Data Expired." If the "Product Expired" message is received, that product will be generated in the next volume scan, but not automatically displayed.

Problem: If the operator selects a Clutter Regions Background Product that is not being generated, a popup will appear stating "Background Product Data Not Available." The product will be generated in the next volume scan, but not automatically displayed.

Workaround: Currently the software requires the Clutter Regions window be refreshed in order to display the newly generated Background Product. If the operator still has the Clutter Regions window open, this product will not appear in the Clutter Regions window until: (1) the window is closed and then reopened, or (2) the operator selects another background product and then selects the original background product again; or (3) the operator switches from the current Segment value and then back again. This problem may be fixed in a future software build.

Problem: It appears that once a Clutter Regions Background Product begins to be generated, it continues to be generated even if the operator closes the Clutter Regions window or selects a different Clutter Regions Background Product.

Solution: This problem may be fixed in a future software build.

1.2 New Method of Opening Previously Saved/New Clutter Region Files

Problem: When an operator defined a new clutter region, the GUI would not display the new regions when the file name was "double-clicked" on.

Solution: The operator must now highlight the new/edited file and click on the new "open" button on the GUI.

1.3 Maximum Number of Clutter Regions

Problem: In Build 9, the number of clutter segments was increased from two to five. There is a default clutter region defined for each segment, 1 through 5. This effectively ties up 5 of 15 available regions (assuming 5 segments are defined at the RDA) and leaves only 10 user-defined regions to spread out over 5 segments.

Solution: During Build 9 development, removing the default region for each segment was tested and it worked fine (highlight region 1 at the bottom and click Delete). The GUI behaves as expected and the Clutter Zones message sent is valid and does not contain the default regions. Deletion of the default regions is a way to free up 5 clutter regions for a user. The maximum amount of defined clutter regions will be increased from 15 to 25 in Build 10. The default Bypass Map will be in effect for any segment which contains no regions.

For those segments which have no defined regions, the RDA will Clutter Suppress all data using the default Bypass Map at the RDA. For each segment, the map used will be exactly the same as the one contained in the region the user deleted.

1.4 Cannot Delete Clutter Suppression Files After Max Number Of Files Are Saved

Problem: Operator defined and saved 20 clutter suppression files, then attempted to create a new file. Before another file could be created, one had to be deleted. The operator deleted a file which was no longer needed, but was still unable to create/save a new file.

Investigation revealed that there were now two files with the same name listed in positions 19 and 20 in the list and there were still 20 files listed. Another file was deleted in an attempt to reduce the total number of files to 19. Now there were three files with the same name (files listed in positions 18, 19 and 20 in the list) and there were still 20 total files listed. NOTE: The files listed in positions 18 and 19 had the same time stamp, while the file listed as 20 had the correct time stamp for that file name.

Workaround: The only way to reduce the number of files was to delete the file located in the 20th position first, then delete the file of interest. This problem will be fixed in Build 10.0.

1.5 Clutter Suppression Files Can Become Corrupted

Problem: In rare instances, an operator defined clutter Suppression file can become corrupted. If this file is downloaded to the RDA, it will be rejected by the RDA and the operator will observe that the specified clutter suppression is not being applied.

Solution: Delete the suspect file or do an RPG shutdown/startup.

2 Issues Associated with Sites having Distant MSCFs with Analog Modem Connections

2.1 Red 'printer' on MSCF Displayed at RPG

Problem: Because of the way the printer is connected to the Distant MSCF, the RPG is unable to ping the printer. Since the RPG cannot ping the printer, when the MSCF GUI is displayed on the RPG, the printer will always show as red.

Solution: This situation will be corrected in Build 10.

2.2 HCI Refresh Stalls at Times

Problem: The RPG HCI, very rarely, will not refresh. When this occurs, the operator will have problems closing the RPG HCI. Please wait patiently. The RPG HCI will eventually refresh.

Solution: This situation will be corrected in a future software build.

2.3 Long Time for MSCF to Open GUI

Problem: Sometimes the MSCF takes up to a full minute to open. The operator must be patient and wait for the window to open to prevent more than one window from being opened.

Solution: This problem is still being researched and will be corrected in a future build.

3 Issues Associated with FAA Sites

3.1 RPG HCI Stuck in TRANSITION

Problem: At times, mostly on the Inactive/Non-Controlling channel, when the RPG software is restarted from the RPG Control window, the State: field on the RPG HCI on the MSCF stays in TRANSITION. On the RPG Control window it correctly shows OPERATE.

Workaround: Close the RPG HCI for this Inactive/Non-Controlling channel and reopen it. This problem will be fixed in Build 10.0.

3.2 BDDS SHUTDOWN After Startup on Active Channel

Problem: Selecting the Shutdown then Startup buttons from the RPG Control window on the Active/Controlling channel to restart the RPG software will leave BDDS & ArchII in a SHUTDOWN status.

Workaround: Restart the BDDS processes by selecting the BDDS Control button, the Startup Processes button and then the Yes button, when prompted. This problem will be fixed in Build 10.0.

4 Products

4.1 May Not Receive MD and DMD Products

Problem: When no MDs features are detected for a volume scan, under certain conditions the MD and DMD products, if requested, are not generated. Again, this only occurs when there are no MD features found for the volume scan. If the products had been generated, they would have been empty.

There are no task failures associated with this problem. However, a Volume Scan Aborted message for the MD/DMD products [IDs 141 and 149] may be observed on the status log of your display system.

Solution: This problem will be corrected in Build 10.0.

5 Miscellaneous

5.1 nexradMigfa Task Failure after BDDS Reboot

Problem: If the RPG loses contact with the BDDS (rpgb) for a certain amount of time, a task failure is generated for any RPG tasks running on the BDDS (rpgb) regardless of whether the lost contact was due to orderly shutdown or a system crash. In Build 9, one RPG task, nexradMigfa, runs on the BDDS (rpgb). The failed task, nexradMigfa, will restart shortly after the wideband user alarm is cleared.

Solution: This will be corrected in Build 10.

5.2 FAA RPG HCIs Stacked After Channel Switch

Problem: After switching channels, the Active/Controlling channel RPG HCI is displayed in the foreground. However, the Inactive/Non-controlling channel RPG HCI, if displayed prior to the channel switch, may be displayed directly under the Active/Controlling channel RPG HCI and cannot be seen. The operator may not realize this and may try to launch another HCI for the Non-controlling channel.

Solution: After a channel switch, the operator needs to be aware that the Inactive/Non-controlling HCI may already be open and needs to be uncovered. This will be corrected in Build 10.

5.3 Power Control Outlet Count Changes

Problem: Anytime there is a loss of communications between the MSCF and the RPG LAN Switch or Router, the MSCF assumes that there are zero Power Control outlets to control. If the Power Control GUI is open, a warning pop-up is displayed that indicates that the number of outlets changed from 16 to 0. When the operator clicks "ok" on the warning pop-up, the Power Control GUI disappears.

Solution: When communications between the MSCF and the RPG LAN Switch or Router has been restored, the operator can open a new Power Control GUI and the correct number of outlets will be displayed.

5.4 No Save Log GUI if HCI Doesn't Open

Problem: A new icon, MISC, has been implemented in Build 9. When the icon is selected a new GUI opens. One of the selections is create save logs. If there are problems with the HCI, in that it will not open, and the operator needs to create save logs, use the workaround below. In addition, the BDDS has no option to open the save log GUI.

Solution: On both the RPG and the BDDS, you can display the GUI by running the command "hci_save_log" in a terminal window.

5.5 "On Top" Can Cause RPG HCI Inaccuracies

Problem: Right-clicking on a window's title bar brings up several options. One option, "On Top", can cause an undesirable side-effect. Selecting this option brings the window to the foreground. However, after using this option on one window, it can cause other windows to not come to the foreground when selected. This forces the use of this "On Top" feature for the new window. After several minutes, the RPG HCI can become corrupted and actually show incorrect information. For example, it can show the radar running in one VCP when it is actually running in another VCP.

Workaround: Closing and reopening the RPG HCI can temporarily correct the problem, but it can soon come back. If this problem is seen, reboot the MSCF. It is recommended that this "On Top" feature not be used at all! This will be corrected in a future software build.

5.6 Malfunctioning RF Generator May Affect SZ-2 VCPs

Problem: If the WSR-88D RF Generator is malfunctioning, Velocity and Spectrum Width products produced by SZ-2 VCPs (211, 212, and 221) may exhibit excessive noise and/or purple haze.

Solution: If the operator suspects that there is excessive noise/purple haze in SZ-2 VCP Velocity/Spectrum Width products, download a non SZ-2 VCP. Then check the MSCF Status/Alarm log to determine if the Velocity/Width Check-Maint Required or Velocity/Width Check Degraded alarm is set. If either alarm is set, request a maintenance technician check the RF Generator to see if it is operating properly and replace if necessary. Operators should only download non SZ-2 VCPs until the RF Generator problem is fixed.

5.7 RDA HCI Help Files Unavailable on MSCF and Dial-up PC

Problem: When selecting RDA HCI Help for an RDA HCI displayed on the MSCF or via a dial-up PC connection, a message is received saying, "RDA HCI help is not available. Ensure that the RDA HCI help files and Adobe Acrobat are installed."

Note that the RDA HCI Help does work properly for the RDA HCI displayed on the RDA.

Workaround: The RDA HCI Help system is a copy of the EHB 6-515-1 [RDA User's Guide] manual. Until this problem in corrected in Build 10, use the EHB 6-515-1 manual.

For a dial-up PC, the RDA HCI Help files can be manually displayed by opening Windows Explorer, navigating to c:\orda\doc\help\hciHelp, and then double-clicking on the file TableOfContents.pdf.

5.8 Configuration Failure on PTI [Comm Server] Boxes

Problem: At times with the Build 9 automatic hardware configuration, a PTI box may fail to configure. Often, just repeating the configuration on the PTI box will allow it to configure. However, if the PTI box reboots while it is trying to save its configuration, the "Client's Internet Address" field located in flash memory becomes corrupted.

Once this happens, the PTI box can no longer be loaded normally, and the "Client Internet Address" field cannot be reset (the attempt causes a malfunction that throws the PTI into its debug mode).

Solution: Check to see if this is the case by performing Step 1 of Attachment 1. If this problem is occurring, complete the remainder of Attachment 1.

Attachment 1

Recovering a Lost Client's Internet Address on a PTI Box

Step	Action/Response

1	Check to see if the PTI box has this lost Client's Internet Address problem by:
	
	a) Clicking on the Terminal icon on the top panel to open a new `Terminal` window.
	
	b) In this `Terminal` window, enter the following commands:
	cd $ORPGDIR/logs<Enter>
	cat config_device.pti-*x*.log<Enter> (where *x* is a, b, or c, depending on which PTI box failed)
	
	If the bottom of the file repeatedly displays messages similar to the following:
	
	`Send arp frame.`
	`MPS800 (50Mhz) initialization complete. Begin configuration.`
	`Server enet address 00:0c:8c:58:9f:43`
	`PTI Prom Version 1.7`
	`Press <spacebar> within next 3 seconds for configuration menu.`
	
	Perform the following steps to recover the PTI box.

2	First and foremost, DO NOT run the PTI configuration utility while the RPG software is running. Shutdown the RPG software first. On the `RPG Control/Status` window, select RPG **Control** and then the **Shutdown** button. Click **Yes** in the `warning-popup` window.
3	Once the RPG in a SHUTDOWN state, enter the following command to begin the manual configuration of the failed PTI box: **config_device -m pti-*x* <Enter>** (where *x* is a, b, or c)
4	Power the PTI box off using the power switch on the back of the unit.

Step	Action/Response
5	Locate the IEEE address on the back of the PTI box above the power switch and record the last six (6) numbers and/or letters below. ____ ____ ____ ____ ____ ____
	NOTE The following step requires the operator to quickly return to the terminal window. If necessary, repeat the power off / power on and continue immediately to Step 7.
6	Power the PTI box back on, and immediately return to the terminal window.
7	When the prompt: `Press <spacebar> within next 3 seconds for configuration menu.` is displayed, press the **<Spacebar>**.
8	Enter PQbug (i.e., debug) mode by entering: **d <Enter>** [debug prompt is `PQbug>`]
9	Enter the IEEE address as follows: **mac 000C8C*XX* <spacebar> *XXXX*0000 <Enter>** (where the *X*'s are the numbers and letters recorded in step 5. Use <Ctrl>H to backspace, if needed) Ensure the following is displayed before proceeding to the next step, otherwise repeat this step: `Programming Mac address … finished`
10	Enter: **reset <Enter>** At this point, the PTI will continually reboot. This is an expected occurrence.

Step	Action/Response
11	Enter: **~~~** (3 tildes) And wait for a normal terminal prompt. It may be necessary to backspace over a displayed tilde, this is normal.
12	Rerun the configuration on this PTI box by entering: **config_device pti-*x* <Enter>** (where *x* is a, b, or c)
13	When the configuration has completed, check that it was successful by entering: **cat config_device.pti-*x*.log<Enter>** (where *x* is a, b, or c) Scroll back through the file and verify that the PTI box loaded properly (i.e., the PTI logo is displayed).
14	Restart the RPG software by selecting **Startup** on the `RPG Control` window.
15	If the PTI box is still not functional, contact the WSR-88D Hotline for assistance.

Quick Reference VCP Comparison Table for RPG Operators

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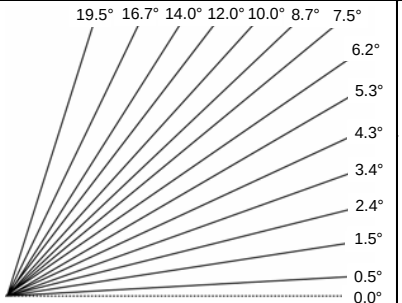
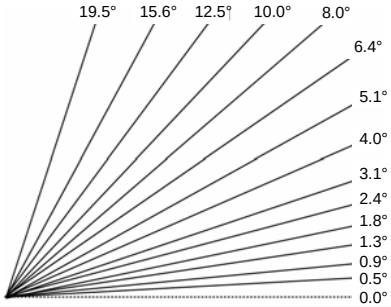
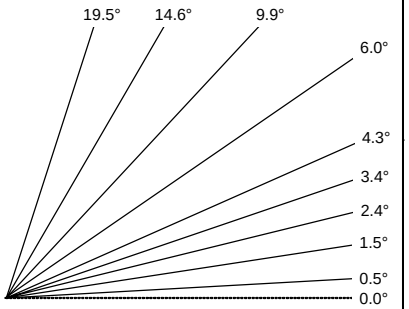
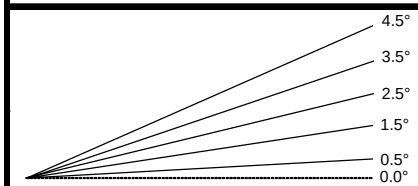
Slices	Tilts	VCP	Time*	Usage	Limitations
	**14**	**11**	**5 mins**	Severe and non-severe convective events. Local 11 has Rmax=80nm. Remote 11 has Rmax=94nm.	Fewer low elevation angles make this VCP less effective for long-range detection of storm features when compared to VCPs 12 and 212.
		211	**5 mins**	Widespread precipitation events with embedded, severe convective activity (e.g. MCS, hurricane). Significantly reduces range-obscured V/SW data when compared to VCP 11.	All Bins clutter suppression is NOT recommended. PRFs are not editable for SZ-2 (Split Cut) tilts.
	**14**	**12**	**4 ½ mins**	Rapidly evolving, severe convective events. Extra low elevation angles increase low-level vertical resolution when compared to VCP 11.	High antenna rotation rates decrease the effectiveness of clutter filtering, increase the likelihood of bias, and slightly decrease accuracy of the base data estimates.
		212	**4½ mins**	Rapidly evolving, widespread severe convective events (e.g. squall line, MCS). Increased low-level vertical resolution compared to VCP 11. Significantly reduces range-obscured V/SW data when compared to VCP 12.	All Bins clutter suppression is NOT recommended. PRFs are not editable for SZ-2 (Split Cut) tilts. High antenna rotation rates decrease the effectiveness of clutter filtering, increase the likelihood of bias, and slightly decrease accuracy of the base data estimates.
	**9**	**21**	**6 mins**	Non-severe convective precipitation events. Local 21 has Rmax=80nm. Remote 21 has Rmax=94nm.	Gaps in coverage above 5°.
		121	**6 mins**	VCP of choice for hurricanes. Widespread stratiform precipitation events. Significantly reduces range-obscured V/SW data when compared to VCP 21.	PRFs are not editable for any tilt. Gaps in coverage above 5°.
		221	**6 mins**	Widespread precipitation events with embedded, possibly severe convective activity (e.g. MCS, hurricane). Further reduces range-obscured V/SW data when compared to VCP 121.	All Bins clutter suppression is NOT recommended. PRFs are not editable for SZ-2 (Split Cut) tilts. Gaps in coverage above 5°.
	**5**	**31**	**10 mins**	Clear-air, snow, and light stratiform precipitation. Best sensitivity. Detailed boundary layer structure often evident.	Susceptible to velocity dealiasing failures. No coverage above 5°. Rapidly developing convective echoes aloft might be missed.
		32	**10 mins**	Clear-air, snow, and light stratiform precipitation.	No coverage above 5°. Rapidly developing convective echoes aloft might be missed.

*VCP update times are approximate.